

Claims

What is claimed is:

1. A method of making germline-transformed soybean plants using *Agrobacterium* mediation, the method comprising:
 - 10 (a) initiating the germination of a soybean seed;
 - (b) isolating the embryonic axis from the soybean seed to prepare an explant;
 - (c) exposing the explant to a disarmed *Agrobacterium* vector containing a heterologous genetic construct including a selectable marker gene under conditions in which the heterologous genetic construct is transferred into at least one cell in the explant;
 - 15 (d) culturing the explant in the presence of a selection agent in a manner capable of identifying soybean cells of the explant to which the heterologous genetic construct has been transferred;
 - (e) inducing formation of one or more shoots from the explant, the shoot comprising germline transformed cells;
 - 20 (f) cultivating the shoot into a whole fertile mature soybean plant.
2. The method of claim 1 wherein in step (c) the explant is exposed to the *Agrobacterium* vector within 14 hours after initiation of step (a).
- 25 3. The method of claim 1 wherein the heterologous genetic construct comprises of a gene of interest and a coding sequence encoding a protein that confers glyphosate tolerance to a plant cell in which the sequence is expressed.
- 30 4. The method of claim 3 wherein the heterologous genetic construct further comprises a coding sequence encoding an EPSP synthase protein.
5. The method of claim 4, wherein the EPSP synthase protein is the CP4 protein.

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6. The method of claim 1 wherein the selection agent is glyphosate.

7. The method of claim 1 wherein the heterologous genetic construct comprises of a gene of interest and a coding sequence encoding a protein that confers kanamycin tolerance to a plant cell in which the protein is produced.

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8. The method of claim 7 wherein the heterologous genetic construct further comprises a coding sequence encoding a neomycin phosphotransferase II (nptII) protein.

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9. The method of claim 1 wherein the selection agent is kanamycin.

10. The method of claim 1 wherein inducing formation of one or more shoots from the explant comprises application of a hormone or glyphosate to the explant.

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